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REMARKS

The Invention.

The present invention provides a novel β -glucosidase nucleic acid sequence, designated *bgl4*, and the corresponding BGL4 amino acid sequence. The presently claimed invention also provides expression vectors and host cells comprising a nucleic acid sequence encoding BGL4, recombinant BGL4 proteins and methods for producing the same.

Status of the Application.

Claims 2, 4-17, 19-20, 23-24 and 26 are pending in the application. Applicants gratefully acknowledge that the Examiner has determined that Claims 23 and 24 are allowable.

Claims 2 and 8 have been amended to further clarify the invention. Applicants assert new matter has not been introduced by the amendment. Support for the amendments may be found in the specification and claims as originally filed. Entry of the amendments is respectfully requested.

35 U.S.C. §112, first paragraph.

Claims 2, 4-17, 19-20, 23-24 and 26

Claims 2, 4-17, 19-20, 23-24 and 26 stand rejected under 35 USC §112, first paragraph as failing to enable a person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Specifically, the Examiner asserts that it would require undue experimentation by a skilled artisan to identify regions that can be changed and make and use all the claimed variant polynucleotides. Applicants respectfully traverse.

Applicants have amended Claims 2 and 8 to recite those nucleic acid sequences encoding a β -glucosidase 4 polypeptide having at least 98% sequence identity to the amino acid sequence presented in Figure 2. Applicants believe that a person skilled in the art would not require undue experimentation to arrive at the claimed polynucleotides as claim 2 now clearly identifies the β -glucosidase as belonging to Family 3 glycosyl hydrolases.

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Applicants submit that a variety of GH Family 3 beta-glucosidases were known by those of skill in the art as of the filing date of the instant application. One of ordinary skill in the art would, given the contents of the specification, be able to identify the related naturally occurring beta-glucosidases as described therein. See, for example, page 24, lines 1-12. Thus, the skilled artisan would be able to use the routine methods described in the specification to isolate and identify the inventive beta-glucosidases.

Additionally, it is well known in the art that conservative amino acid substitutions may not materially affect the characteristics of the novel inventive Family 3 glycosyl hydrolases beta-glucosidase. Furthermore, the claims as written allow a small amount of change in the amino acid sequence of the protein presented in Figure 2 to cover naturally occurring variants.

A "pioneer" invention is entitled to a broad range of equivalents. *Sealed Air Corp. v. United States International Trade Comm'n*, 68 C.C.P.A. 93, 645 F.2d 976, 984, 209 U.S.P.Q. (BNA) 469, 477 (CCPA 1981). Applicants assert that the present invention is "pioneering," and that, as such, should be entitled to claims of broad scope. Narrower claims, i.e., claims limited to the exact sequences with no variation, would provide no real protection as the level of skill in this art is so high, art workers could easily avoid the claims. Given the disclosure in the specification, Applicants contend that any skilled artisan could isolate naturally occurring DNA encoding a glycosyl hydrolase Family 3 beta-glucosidase, construct vectors and transform many different host cells, using a variety of promoters and DNA, and could easily determine whether or not the active GH Family 3 beta-glucosidase protein was successfully expressed by the host cells.

Applicants have cancelled claim 1 and submit that independent claims 2 and 8 comply with the requirements of section 112, first paragraph. Specifically, the claims now recite a polynucleotide encoding a glycosyl hydrolase Family 3 beta-glucosidase of at least 98% identity to the amino acid sequence presented in Figure 2 or capable of hybridizing to a probe designed to the nucleotide sequence encoding the amino acid sequence disclosed in Figure 2 under conditions of intermediate to high stringency. The percent identity is supported at various places in the disclosure such as, page 37, lines 9 - 36. Furthermore, as stated at page 10 of the specification, fungal polynucleotide homologues of glycosyl hydrolase Family 3 beta-glucosidase can be identified through

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nucleic acid hybridization of fungal nucleic acid of either genomic or cDNA origin. Hybridization is also discussed in the specification at page 38.

The Examiner has rejected claims 1 - 18 under the written description requirement of section 112. Applicants submit the claims as instantly presented are supported by the specification. The vectors, host cells and methods comprising a nucleic acid encoding a glycosyl hydrolase Family 3 beta-glucosidase as presently claimed include identifying characteristics of the claimed molecules (SEQ ID NO: 2 and SEQ ID NO: 3) and correlate known structural characteristics with functional characteristics. The specification need not teach that which is well known in the art; glycosyl hydrolases, including those in Family 3, were well characterized at the time of filing.

There is no requirement under section 112, that the subject matter of a claim be described literally in the disclosure. To satisfy the written description requirement, the applicant must convey with reasonable clarity to those of ordinary skill in the art that, as of the filing date sought, he had possession of the invention. In demonstrating that the requirement is satisfied, an applicant is not limited to the specification. See, for example, *Martin v. Mayer* 3 USPQ2d 1333 (Fed. Cir. 1987).

Applicants submit that obtaining the nucleic acid sequence encoding a beta-glucosidase obtainable from characterized or deposited microorganisms would be deemed well within the skill of the art, especially when characteristics such as the microorganism from which the beta-glucosidase is obtained, molecular weight, and sequence information are available.

Applicants submit that requiring disclosure of all possible embodiments of an invention is not an appropriate test for enablement under *In re Wands* (8 USPQ2d 1400 (Fed. Cir. 1988)). As held by the courts in *Texas Instr. Inc. v United States ITC* (231 USPQ 833, Fed. Cir. 1986) compliance with Section 112, first paragraph does not require that an applicant describe in the specification every conceivable and possible future embodiment of his invention.

Applicants assert that they have taught how to make and use the presently claimed invention and that no undue experimentation would be required to practice it.

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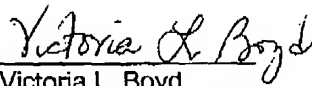
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For the reasons given above, Applicant believes the instant rejection is in error.
Withdrawal of the rejection is respectfully requested.

CONCLUSION

In light of the above amendments, as well as the remarks, the Applicants believe the pending claims are in condition for allowance and issuance of a formal Notice of Allowance at an early date is respectfully requested. If a telephone conference would expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (650) 846-7615.

Respectfully submitted,


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